

## **REMARKS/ARGUMENTS**

Claims 1-21 remain in this application. Claims 1, 2, 8, and 16 have been amended herein. Claims 3, 7, 12-14 and 21 have been canceled herein. New claims 22-27 have been added herein.

### **1. Claim Objections**

Claim 8 is objected to for certain informalities. Claim 8 refers to itself in regards to the oil based compound being a polyalpholefin. Claim 8 has been amended to properly refer to the method of claim 4. Examiner is thanked for pointing out this error. Accordingly, the objection is overcome.

### **2. §112, Second Para. Rejections**

Claims 1-21 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Examiner indicates the terms “substantially” and “sufficiently” and “effective” presented in claims 1, 6, 9, and 16 renders them indefinite.

Respectfully, these rejections are traversed. The Examiner is directed to the following representative cases which have held that the use of the word “substantially” is a word of degree and is entirely appropriate. For example, “substantially” may be used “when serving reasonably to describe the claimed subject matter, and to distinguish the claimed subject matter from the prior art.” Andrew Corp. v Gabriel Electronics, Inc., 6 USPQ2d 2010, 847 F.2d 819, 821 (Fed Cir. 1988). Further, the CAFC has held that words of degree may be used “to prevent the avoidance of infringement by minor changes that do not affect the results sought and accomplished.” C.E. Equipment Co., Inc. v. United States, 13 USPQ2d 1363, 17 Cl.Ct. 293, 299 (1989). “The term “substantially” in patent claims gives rise to some definitional leeway.... Patentees may use these terms to avoid unduly limiting the modified word. Thus, the term “substantially” may prevent avoidance of infringement by minor changes that do not affect the results sought and accomplished.” C.E. Equipment Co., 17 Cl.Ct. at 299. Consistent with this view, in York Products, Inc. v. Central Tractor Farm & Family Center, 40 USPQ2d 1619, 99 F.3d 1568 (Fed. Cir. 1996), the Federal Circuit held that the use of the word “substantial” did not render a claim indefinite. Noting that the “patent discloses no novel use of claim words,” the court accorded the word “substantially” its normal meaning, stating: “ordinarily, therefore, ‘substantially’ means ‘considerable in ... extent, . . . , or ‘largely but not wholly that which is specified.’” *Id.* at 1572-73. In one recent case, the court allowed the use of “substantially,” and stated that where there is no indication that the patent assigned a special meaning to the term “substantially,” that the phrase “substantially instantaneously” simply means “nearly instantaneous.” Chemical Separation Technologies v. US, 63 USPQ2d 1114 (US Ct Fed Cls 2002).

Accordingly, we believe that the established precedent indicates that the term “substantially” does not render the claim indefinite. As such, we believe the rejection should be withdrawn. The terms “sufficiently” and “effective” have been deleted from the claims to reduce the issues. These words are superfluous and are not needed to define over the prior art. Accordingly, it is believed the rejection based upon the use of these words is also overcome.

### **3. §103 Rejections**

Claims 1, 2, and 4-21 have been rejected under 35 U.S.C. 103(b) under 35 U.S.C. 103(a) as being unpatentable over Beall et al (US 6,132,671) in view of Chalasani et al. (US 6,080,345) and Gheorgiu (US 6,287,509).

Respectfully, the combination does not render the claimed invention obvious. First, Beall only teaches removal of the organic liquid fluid, *during drying* (see Col. 4, lines 40-42). Further, it does not teach or suggest that any further problems, i.e., cracking and/or explosive firing environments, may exist when further heating the green body after such drying. Although Chalasani teaches a similar binder system, there is no indication of how to overcome problems encountered in firing it. In particular, Beall does not teach or suggest what special handling considerations might be employed in the heating step following drying. Beall simply states that any problems are addressed by removal of oils during drying. Clearly, none of the cited references, alone or in combination, teach in a first phase, following drying, heating in an *oxidizing atmosphere* to a temperature and for a time to enable *sequential removal* of the organic compounds, such that the organic compound with the lower weight loss onset temperature is *substantially removed* prior to the organic compound with the higher weight loss onset temperature. In particular, Beall teaches *substantial removal* in drying. With such substantial removal, there is no apparent need to further control subsequent heating steps. Contrarily, the present invention teaches, following drying, *sequential removal*, i.e., *substantial removal* of the first organic compound prior to removal of the second organic compound. Thus, the present invention addresses the problem of where oil is not substantially removed in drying and thereby reduces the propensity for part cracking and/or provides a safer environment by controlling volatile removal after drying. Claim 1 and 16 have been amended to further clarify that the first phase is *follows the drying step*. Accordingly, it is believed that all obviousness rejections are overcome and should be withdrawn.

#### 4. New Claims

New Claims 22-27 have been added herein. Claims 22-23 are allowable for at least the reasons given for claim 1 and further clarify certain aspects of the invention. Claim 24 is allowable because the prior art does not teach or suggest a method for fabricating a fired ceramic article having the steps of forming a batch mixture of components comprising inorganic ceramic powder materials, an oil or an oil-based organic compound having a first weight loss onset temperature, and an organic binder compound having a second higher weight loss onset temperature; blending the components to form a plasticized mixture; shaping the plasticized mixture into a green ceramic structural body; drying the green ceramic structural body; following drying and during firing, heating the green ceramic structural body to a first temperature at or above the first weight loss onset temperature, but below the second weight loss onset temperature for a time to enable substantial removal of the oil or an oil-based organic compound, and then followed by further heating at a temperature at or above the second weight loss onset temperature until there is substantial removal of the organic binder compound; and then further heating the green body to a temperature and for a time to convert the green body into a fired ceramic. Claims 25-27 are allowable for at least this reason.

#### 5. Conclusion

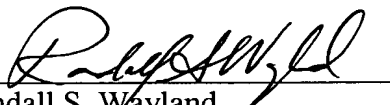
Based upon the above amendments, remarks, and papers of records, Applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Appl. No.: 10/606,509  
Amdt. Dated: February 16, 2005  
Reply to Office Action of: November 23, 2004

Applicant believes that no extension of time is necessary to make this Reply timely. Should Applicant be in error, Applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Randall S. Wayland at (607) 974-0463.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Randall S. Wayland", written over a horizontal line.

DATE: February 16, 2005

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